## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

## (19) World Intellectual Property Organization International Bureau





(43) International Publication Date 28 October 2004 (28.10.2004)

**PCT** 

(10) International Publication Number WO 2004/092187 A1

(51) International Patent Classification<sup>7</sup>: 9/10, 9/12, A61K 31/661, A61P 23/00

C07F 9/09.

(21) International Application Number:

PCT/AU2004/000491

(22) International Filing Date: 14 April 2004 (14.04.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 2003901815

15 April 2003 (15.04.2003) AU

- (71) Applicant (for all designated States except US): VITAL HEALTH SCIENCES PTY LTD [AU/AU]; Level 2, 90 William Street, Melbourne, VIC 3000 (AU).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): WEST, Simon, Michael [AU/AU]; 3 Verdon Street, Williamstown, VIC 3016 (AU). KANNAR, David [AU/AU]; 182 Belgrave Hallam Road, Belgrave South, VIC 3160 (AU).
- (74) Agent: MALLESONS, Stephen, Jaques; Level 28 Rialto, 525 Collins Street, Melbourne VIC 3000 (AU).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PHOSPHATE DERIVATIVES

(57) Abstract: According to the invention, there is provided a phosphate derivative of a phenolic hydroxy compound comprising the reaction product of the following steps: (d) reacting the phenolic hydroxy compound with an alkyl  $\alpha$ : $\omega$  dialdehyde or a sugar-like polyhydroxy dialdehyde to form a hemiacetal; (e) reducing the terminal aldehyde group on the product from step (a) to a hydroxyl group; and (f) phosphorylating the hydroxyl group formed in step (b) to produce a phosphate derivative of the phenolic hydroxy compound.

